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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Iakovos Sigalas

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EXAMINER

FERGUSON, LAWRENCE D

ART UNIT

PAPER NUMBER

1794

MAIL DATE

DELIVERY MODE

12/15/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/560,020	Applicant(s) SIGALAS ET AL.	
	Examiner LAWRENCE D. FERGUSON	Art Unit 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 September 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. This action is in response to the amendment filed September 18, 2008.

Claims 1-3, 8-9 and 12-18 were amended rendering claims 1-20 pending.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections – 35 USC § 102(b)

3. Claims 1-7, 9-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Fang et al. (U.S. 6,454,027).

Fang discloses a composite material comprising a plurality of granules (cores) formed from a mixture of polycrystalline diamond (PCD) and polycrystalline cubic boron nitride (PcBN) distributed within a matrix and binder (column 2, line 66 through column 3, line 12, 21; column 4, lines 42-43) where the PCD and PcBN materials are ultra-hard materials, as in claims 1-3, 11-13 and 15-17.

Concerning claims 4-5 and 10, the cores are formed of PCD and PcBN and the matrix is construed as being formed of PCD and PcBN material, as the matrix comprises PCD and PcBN material.

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Concerning claims 6-7 and 19-20, the PCD granules have grain size in the range of from 1 to 50 microns (column 5, lines 40-43).

Concerning claim 9, the core and matrix are made from PCD material, where the core PCD material comprises a binder material such as Co, Ni, Fe (column 4, lines 42-45) where the matrix material comprises binder material further consisting of C, B, Cr, Si and Mn (column 3, lines 21-26).

Concerning claims 14 and 18, the PCD composite material is coated on a substrate (column 10, lines 37-47) where the PCD material is sintered at a high temperature and high pressure (column 9, lines 59-67).

Claim Rejections – 35 USC § 103(a)

4. Claims 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fang et al. (U.S. 6,454,027).

Fang is relied upon for claim 1, as above. Fang does not explicitly disclose the PCD and PcBN materials differ in particle size. It would have been obvious to one of ordinary skill in the art for the PCD and PcBN materials to differ in particle size because Fang discloses a composite material comprising a plurality of granules (cores) formed from a mixture of polycrystalline diamond (PCD) and polycrystalline cubic boron nitride (PcBN) (column 2, line 66 through column 3, line 12, 21) where Figure 1 shows the grain size (12) of the mixed material vary in size. The reference further discloses diamond particles can be granulated into a desired size (column 6, lines 33-34).

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Regarding the differing particle size of the materials, a recitation of a newly disclosed property does not distinguish over a reference disclosure of the article or composition claims. *General Electric v. Jewe Incandescent Lamp Co.*, 67 USPQ 155. *Titanium Metal Corp. v. Banner*, 227 USPQ 773.

Response to Arguments

5. The rejection made under 35 U.S.C. 112, second paragraph is withdrawn due to Applicant's amending claims 1-2 and 12-18 to further define the ultra-hard material as polycrystalline ultra-hard material and amending claim to remove the indefinite language. Regarding claims 8 and 11, based upon Applicant's argument regarding the type of ultra-hard material, the indefinite rejection is withdrawn. Last, based on Applicant amending claim 12 to delete the term, "substantially," the indefinite rejection is withdrawn.

Applicant's arguments of the rejection made under 35 U.S.C. 102(b) as being anticipated by Fang et al. (U.S. 6,454,027) have been considered but are unpersuasive. Applicant argues Fang does not describe a composite such as in claim 1 of the present invention, inasmuch as the second region of Fang is not constituted of polycrystalline ultra-hard material, but of a much softer cermet material. Applicant discloses the polycrystalline ultra-hard material is dispersed in a matrix and the matrix comprises a further polycrystalline ultra-hard material of a grade or type which is different from that of the cores. Fang discloses a composite material comprising a plurality of granules

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(cores) formed from a mixture of polycrystalline diamond (PCD) and polycrystalline cubic boron nitride (PcBN) distributed within a matrix and binder (column 2, line 66 through column 3, line 12, 21; column 4, lines 42-43) where the PCD and PcBN materials are ultra-hard materials. Claim 1 is interpreted as a plurality of cores of polycrystalline ultra-hard material dispersed in a matrix, where the matrix also comprises another polycrystalline ultra-hard material, where PCD and PcBN are both polycrystalline ultra-hard materials, which are comprised or dispersed within the matrix material.

Applicant's arguments of the rejection made under 35 U.S.C. 103(a) as being unpatentable over Fang et al. (U.S. 6,454,027) have been considered but are unpersuasive. Applicant argues it is clear that the reference to particle sizes in Fang relates to the granules of the first region and not to the difference in particle sizes between the cores and matrix material. Examiner maintains it would have been obvious to one of ordinary skill in the art for the PCD and PcBN materials to differ in particle size because Fang discloses a composite material comprising a plurality of granules (cores) formed from a mixture of polycrystalline diamond (PCD) and polycrystalline cubic boron nitride (PcBN) (column 2, line 66 through column 3, line 12, 21) where Figure 1 shows the grain size (12) of the mixed material vary in size. The reference further discloses diamond particles can be granulated into a desired size (column 6, lines 33-34).

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6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lawrence Ferguson whose telephone number is 571-272-1522. The examiner can normally be reached on Monday through Friday 9:00 AM – 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer McNeil, can be reached on 571-272-1540. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Lawrence Ferguson/
Patent Examiner, Art Unit 1794

/Jennifer McNeil/
Supervisory Patent Examiner, Art Unit 1794